

## 092630180-040909

Sub

<130> P148946

<150> JP 10/099619

<151> 1998-04-10

<160> 14

 $\langle 210 \rangle$  1

**<211> 477**

&lt;212&gt; PRT

<213> Rattus norvegicus

$\langle 400 \rangle$  1

56

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Leu | Ser | Ile | Arg | Ser | Cys | Phe | Pro | Ser | Leu | Phe | Gln | Ala | Glu | Gln |
|     |     |     | 180 |     |     | 185 |     |     |     |     |     | 190 |     |     |     |
| Thr | His | Gly | Ser | Met | Leu | Leu | Gly | Leu | Leu | Leu | Gly | Ala | Gly | Gln | Thr |
|     |     |     | 195 |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Pro | Gln | Pro | Asn | Ser | Ser | Leu | Ile | Arg | Gln | Ala | Arg | Ala | Glu | Arg | Trp |
|     |     |     | 210 |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Ser | Gln | Trp | Ser | Leu | Arg | Gly | Gly | Leu | Glu | Met | Leu | Pro | Gln | Ala | Leu |
| 225 |     |     | 230 |     |     | 235 |     |     |     |     |     | 240 |     |     |     |
| His | Asn | Tyr | Leu | Thr | Ser | Lys | Gly | Val | Thr | Ile | Leu | Ser | Gly | Gln | Pro |
|     |     |     | 245 |     |     | 250 |     |     |     |     |     | 255 |     |     |     |
| Ala | Cys | Gly | Leu | Ser | Leu | Gln | Pro | Glu | Gly | His | Trp | Lys | Val | Ser | Leu |
|     |     |     | 260 |     |     | 265 |     |     |     |     |     | 270 |     |     |     |
| Gly | Asp | Ser | Ser | Leu | Glu | Ala | Asp | His | Ile | Ile | Ser | Thr | Ile | Pro | Ala |
|     |     |     | 275 |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Ser | Val | Leu | Ser | Lys | Leu | Leu | Pro | Ala | Glu | Ala | Ala | Pro | Leu | Ala | His |
| 290 |     |     | 295 |     |     | 300 |     |     |     |     |     |     |     |     |     |
| Ile | Leu | Ser | Thr | Ile | Gln | Ala | Val | Ser | Val | Ala | Val | Val | Asn | Leu | Gln |
| 305 |     |     | 310 |     |     | 315 |     |     |     |     |     | 320 |     |     |     |
| Tyr | Lys | Gly | Ala | Cys | Leu | Pro | Val | Gln | Gly | Phe | Gly | His | Leu | Val | Pro |
|     |     |     | 325 |     |     | 330 |     |     |     |     |     | 335 |     |     |     |
| Ser | Ser | Glu | Asp | Pro | Thr | Val | Leu | Gly | Ile | Val | Tyr | Asp | Ser | Val | Ala |
|     |     |     | 340 |     |     | 345 |     |     |     |     |     | 350 |     |     |     |
| Phe | Pro | Glu | Gln | Asp | Gly | Asn | Pro | Pro | Gly | Leu | Arg | Leu | Thr | Val | Met |
|     |     |     | 355 |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Leu | Gly | Gly | Tyr | Trp | Leu | Gln | Lys | Leu | Lys | Ala | Asn | Gly | His | Glu | Leu |
| 370 |     |     | 375 |     |     | 380 |     |     |     |     |     |     |     |     |     |
| Ser | Pro | Glu | Leu | Phe | Gln | Arg | Ala | Ala | Gln | Glu | Ala | Ala | Ala | Thr | Gln |
| 385 |     |     | 390 |     |     | 395 |     |     |     |     |     | 400 |     |     |     |
| Leu | Gly | Leu | Lys | Glu | Gln | Pro | Ser | His | Cys | Leu | Val | His | Leu | His | Lys |
|     |     |     | 405 |     |     | 410 |     |     |     |     |     | 415 |     |     |     |
| Asn | Cys | Ile | Pro | Gln | Tyr | Thr | Leu | Gly | His | Trp | Gln | Lys | Leu | Asp | Ser |
|     |     |     | 420 |     |     | 425 |     |     |     |     |     | 430 |     |     |     |
| Ala | Leu | Gln | Phe | Leu | Thr | Ala | Gln | Arg | Leu | Pro | Leu | Thr | Leu | Ala | Gly |
|     |     |     | 435 |     |     | 440 |     |     |     |     |     | 445 |     |     |     |
| Ala | Ser | Tyr | Glu | Gly | Val | Ala | Val | Asn | Asp | Cys | Ile | Glu | Ser | Gly | Arg |
| 450 |     |     | 455 |     |     | 460 |     |     |     |     |     |     |     |     |     |
| Gln | Ala | Ala | Ile | Ala | Val | Leu | Gly | Thr | Glu | Ser | Asn | Ser |     |     |     |
| 465 |     |     | 470 |     |     | 475 |     |     |     |     |     |     |     |     |     |

$$\begin{aligned} \langle 210 \rangle & 2 \\ \langle 211 \rangle & 1638 \end{aligned}$$





GCC AAT GGC CAT GAA TTG TCT CCA GAG CTA TTC CAA CGA GCA GCA CAG 1324  
 Ala Asn Gly His Glu Leu Ser Pro Glu Leu Phe Gln Arg Ala Ala Gln  
 380 385 390  
 GAA GCG GCT GCC ACA CAG TTA GGA CTG AAA GAG CAA CCA AGC CAT TGC 1372  
 Glu Ala Ala Ala Thr Gln Leu Gly Leu Lys Glu Gln Pro Ser His Cys  
 395 400 405 410  
 TTG GTC CAT CTA CAC AAA AAC TGT ATC CCT CAG TAT ACA CTA GGC CAC 1420  
 Leu Val His Leu His Lys Asn Cys Ile Pro Gln Tyr Thr Leu Gly His  
 415 420 425  
 TGG CAA AAA CTA GAC TCA GCT CTG CAA TTC CTG ACG GCC CAG AGG TTG 1468  
 Trp Gln Lys Leu Asp Ser Ala Leu Gln Phe Leu Thr Ala Gln Arg Leu  
 430 435 440  
 CCC CTG ACT TTG GCT GGG GCC TCC TAT GAG GGG GTA GCT GTC AAT GAC 1516  
 Pro Leu Thr Leu Ala Gly Ala Ser Tyr Glu Gly Val Ala Val Asn Asp  
 445 450 455  
 TGT ATA GAG AGT GGG CGC CAG GCA GCA ATT GCT GTC CTG GGC ACA GAA 1564  
 Cys Ile Glu Ser Gly Arg Gln Ala Ala Ile Ala Val Leu Gly Thr Glu  
 460 465 470  
 TCG AAC AGC TGA CCCCCACTCT CCTACTCATG AAAGTAAAAG TTGATGGAGC 1614  
 Ser Asn Ser  
 475  
 TTGAAAAAAAA AAAAAAAAAA AA  
 1636

<210> 3  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Designed oligonucleotide primer used for amplifying a DNA fragment  
 containing a partial nucleotide sequence of a rat-derived PPO gene

<400> 3

TTTGCAGAGG AGTGTTTGCT GGCAACAG 28

<210> 4  
 <211> 29  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Designed oligonucleotide primer used for amplifying a DNA fragment containing a partial nucleotide sequence of a rat-derived PPO gene

<400> 4

AGCCGCTTCC TGTGCTGCTC GTTGAATA 29

<210> 5

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Designed oligonucleotide primer used for constructing a vector expressing a rat-derived PPO gene in *Escherichia coli*

<400> 5

AGGCCTTACC GCGGCCCGGA CTGTG 25

<210> 6

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Designed oligonucleotide primer used for constructing a vector expressing a rat-derived PPO gene in *Escherichia coli*

<400> 6

TAGGAGAGCC CGGGTCAGAT GTTCG 25

<210> 7

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Designed oligonucleotide primer used for constructing a rat-derived PPO gene expression vector for direct introduction and a rat-derived PPO expression vector for indirect introduction

<400> 7

ATGGCCCCGA CTGTGATAGT GCTTG 25

<210> 8

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Designed oligonucleotide primer used for constructing a rat-derived PPO gene expression vector for direct introduction and a rat-derived PPO expression vector for indirect introduction

<400> 8

TTCATGAGTA GGAGAGTGGG GGTCA 25

<210> 9

<211> 563

<212> PRT

<213> *Chlamydomonas reinhardtii* CC-407

<400> 9

Met Met Leu Thr Gln Thr Pro Gly Thr Ala Thr Ala Ser Ser Arg Arg  
1 5 10 15  
Ser Gln Ile Arg Ser Ala Ala His Val Ser Ala Lys Val Ala Pro Arg  
20 25 30  
Pro Thr Pro Phe Ser Val Ala Ser Pro Ala Thr Ala Ala Ser Pro Ala  
35 40 45  
Thr Ala Ala Ala Arg Arg Thr Leu His Arg Thr Ala Ala Ala Ala Thr  
50 55 60  
Gly Ala Pro Thr Ala Ser Gly Ala Gly Val Ala Lys Thr Leu Asp Asn  
65 70 75 80  
Val Tyr Asp Val Ile Val Val Gly Gly Gly Leu Ser Gly Leu Val Thr  
85 90 95  
Gly Gln Ala Leu Ala Ala Gln His Lys Ile Gln Asn Phe Leu Val Thr  
100 105 110  
Glu Ala Arg Glu Arg Val Gly Gly Asn Ile Thr Ser Met Ser Gly Asp  
115 120 125  
Gly Tyr Val Trp Glu Glu Gly Pro Asn Ser Phe Gln Pro Asn Asp Ser





[illegible]

<210> 10  
 <211> 1838  
 <212> DNA  
 <213> *Chlamydomonas reinhardtii* CC-407

 $\langle 400 \rangle$  10

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Val | Tyr | Asp | Val | Ile | Val | Val | Gly | Gly | Gly | Leu | Ser | Gly | Leu | Val |     |
| 80  |     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| ACC | GGC | CAG | GCC | CTG | GCG | GCT | CAG | CAC | AAA | ATT | CAG | AAC | TTC | CTT | GTT | 334 |
| Thr | Gly | Gln | Ala | Leu | Ala | Ala | Gln | His | Lys | Ile | Gln | Asn | Phe | Leu | Val |     |
|     |     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| ACG | GAG | GCT | CGC | GAG | GCG | GTC | GGC | GGC | AAC | ATT | ACG | TCC | ATG | TCG | GGC | 382 |
| Thr | Glu | Ala | Arg | Glu | Arg | Val | Gly | Gly | Asn | Ile | Thr | Ser | Met | Ser | Gly |     |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| GAT | GGC | TAC | GTG | TGG | GAG | GAG | GGC | CCG | AAC | AGC | TTC | CAG | CCC | AAC | GAT | 430 |
| Asp | Gly | Tyr | Val | Trp | Glu | Glu | Gly | Pro | Asn | Ser | Phe | Gln | Pro | Asn | Asp |     |
|     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| AGC | ATG | CTG | CAG | ATT | GCG | GTG | GAC | TCT | GGC | TGC | GAG | AAG | GAC | CTT | GTG | 478 |
| Ser | Met | Leu | Gln | Ile | Ala | Val | Asp | Ser | Gly | Cys | Glu | Lys | Asp | Leu | Val |     |
|     | 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     |     |
| TTC | GGT | GAC | CCC | ACG | GCT | CCC | CGC | TTC | GTG | TGG | TGG | GAG | GGC | AAG | CTG | 526 |
| Phe | Gly | Asp | Pro | Thr | Ala | Pro | Arg | Phe | Val | Trp | Trp | Glu | Gly | Lys | Leu |     |
| 160 |     |     |     |     | 165 |     |     |     | 170 |     |     |     |     | 175 |     |     |
| CGC | CCC | GTG | CCC | TCG | GGC | CTG | GAC | GCC | TTC | ACC | TTC | GAC | CTC | ATG | TCC | 574 |
| Arg | Pro | Val | Pro | Ser | Gly | Leu | Asp | Ala | Phe | Thr | Phe | Asp | Leu | Met | Ser |     |
|     |     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| ATC | CCC | GGC | AAG | ATC | CGC | GCC | GGG | CTG | GGC | GCC | ATC | GGC | CTC | ATC | AAC | 622 |
| Ile | Pro | Gly | Lys | Ile | Arg | Ala | Gly | Leu | Gly | Ala | Ile | Gly | Leu | Ile | Asn |     |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| GGA | GCC | ATG | CCC | TCC | TTC | GAG | GAG | AGT | GTG | GAG | CAG | TTC | ATC | CGC | CGC | 670 |
| Gly | Ala | Met | Pro | Ser | Phe | Glu | Glu | Ser | Val | Glu | Gln | Phe | Ile | Arg | Arg |     |
|     | 210 |     |     |     |     | 215 |     |     |     | 220 |     |     |     |     |     |     |
| AAC | CTG | GGC | GAT | GAG | GTG | TTC | TTC | CGC | CTG | ATC | GAG | CCC | TTC | TGC | TCC | 718 |
| Asn | Leu | Gly | Asp | Glu | Val | Phe | Phe | Arg | Leu | Ile | Glu | Pro | Phe | Cys | Ser |     |
|     | 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     |     |
| GGC | GTG | TAC | GCG | GGC | GAC | CCC | TCC | AAG | CTG | TCC | ATG | AAG | GCG | GCC | TTC | 766 |
| Gly | Val | Tyr | Ala | Gly | Asp | Pro | Ser | Lys | Leu | Ser | Met | Lys | Ala | Ala | Phe |     |
| 240 |     |     |     |     | 245 |     |     |     | 250 |     |     |     |     | 255 |     |     |
| AAC | AGG | ATC | TGG | ATT | CTG | GAG | AAG | AAC | GGC | GGC | AGC | CTG | GTG | GGA | GGT | 814 |
| Asn | Arg | Ile | Trp | Ile | Leu | Glu | Lys | Asn | Gly | Gly | Ser | Leu | Val | Gly | Gly |     |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| GCC | ATC | AAG | CTG | TTC | CAG | GAA | CGC | CAG | TCC | AAC | CCG | GCC | CCG | CCG | CGG | 862 |
| Ala | Ile | Lys | Leu | Phe | Gln | Glu | Arg | Gln | Ser | Asn | Pro | Ala | Pro | Pro | Arg |     |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| GAC | CCG | CGC | CTG | CCG | CCC | AAG | CCC | AAG | GGC | CAG | ACG | GTG | GGC | TCG | TTC | 910 |
| Asp | Pro | Arg | Leu | Pro | Pro | Lys | Pro | Lys | Gly | Gln | Thr | Val | Gly | Ser | Phe |     |
|     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| CGC | AAG | GGC | CTG | AAG | ATG | CTG | CCG | GAC | GCC | ATT | GAG | CGC | AAC | ATC | CCC | 958  |
| Arg | Lys | Gly | Leu | Lys | Met | Leu | Pro | Asp | Ala | Ile | Glu | Arg | Asn | Ile | Pro |      |
| 305 |     |     | 310 |     |     | 315 |     |     |     |     |     |     |     |     |     |      |
| GAC | AAG | ATC | CGC | GTG | AAC | TGG | AAG | CTG | GTG | TCT | CTG | GGC | CGC | GAG | GCG | 1006 |
| Asp | Lys | Ile | Arg | Val | Asn | Trp | Lys | Leu | Val | Ser | Leu | Gly | Arg | Glu | Ala |      |
| 320 |     |     | 325 |     |     | 330 |     |     | 335 |     |     |     |     |     |     |      |
| GAC | GGG | CGG | TAC | GGG | CTG | GTG | TAC | GAC | ACG | CCC | GAG | GGC | CGT | GTC | AAG | 1054 |
| Asp | Gly | Arg | Tyr | Gly | Leu | Val | Tyr | Asp | Thr | Pro | Glu | Gly | Arg | Val | Lys |      |
| 340 |     |     | 345 |     |     | 350 |     |     |     |     |     |     |     |     |     |      |
| GTG | TTT | GCC | CGC | GCC | GTG | GCT | CTG | ACC | GCG | CCC | AGC | TAC | GTG | GTG | GCG | 1102 |
| Val | Phe | Ala | Arg | Ala | Val | Ala | Leu | Thr | Ala | Pro | Ser | Tyr | Val | Val | Ala |      |
| 355 |     |     | 360 |     |     | 365 |     |     |     |     |     |     |     |     |     |      |
| GAC | CTG | GTC | AAG | GAG | CAG | GCG | CCC | GCC | GCC | GCC | GAG | GCC | CTG | GGC | TCC | 1150 |
| Asp | Leu | Val | Lys | Glu | Gln | Ala | Pro | Ala | Ala | Ala | Glu | Ala | Leu | Gly | Ser |      |
| 370 |     |     | 375 |     |     | 380 |     |     |     |     |     |     |     |     |     |      |
| TTC | GAC | TAC | CCG | CCG | GTG | GGC | GCC | GTG | ACG | CTG | TCG | TAC | CCG | CTG | AGC | 1198 |
| Phe | Asp | Tyr | Pro | Pro | Val | Gly | Ala | Val | Thr | Leu | Ser | Tyr | Pro | Leu | Ser |      |
| 385 |     |     | 390 |     |     | 395 |     |     |     |     |     |     |     |     |     |      |
| GCC | GTG | CGG | GAG | GAG | CGC | AAG | GCC | TCG | GAC | GGG | TCC | GTG | CCG | GGC | TTC | 1246 |
| Ala | Val | Arg | Glu | Glu | Arg | Lys | Ala | Ser | Asp | Gly | Ser | Val | Pro | Gly | Phe |      |
| 400 |     |     | 405 |     |     | 410 |     |     | 415 |     |     |     |     |     |     |      |
| GGT | CAG | CTG | CAC | CCG | CGC | ACG | CAG | GGC | ATC | ACC | ACT | CTG | GGC | ACC | ATC | 1294 |
| Gly | Gln | Leu | His | Pro | Arg | Thr | Gln | Gly | Ile | Thr | Thr | Leu | Gly | Thr | Ile |      |
| 420 |     |     | 425 |     |     | 430 |     |     |     |     |     |     |     |     |     |      |
| TAC | AGC | TCC | AGC | CTG | TTC | CCC | GGC | CGC | GCG | CCC | GAG | GGC | CAC | ATG | CTG | 1342 |
| Tyr | Ser | Ser | Ser | Leu | Phe | Pro | Gly | Arg | Ala | Pro | Glu | Gly | His | Met | Leu |      |
| 435 |     |     | 440 |     |     | 445 |     |     |     |     |     |     |     |     |     |      |
| CTG | CTC | AAC | TAC | ATC | GGC | GGC | ACC | ACC | AAC | CGC | GGC | ATC | GTC | AAC | CAG | 1390 |
| Leu | Leu | Asn | Tyr | Ile | Gly | Gly | Thr | Thr | Asn | Arg | Gly | Ile | Val | Asn | Gln |      |
| 450 |     |     | 455 |     |     | 460 |     |     |     |     |     |     |     |     |     |      |
| ACC | ACC | GAG | CAG | CTG | GTG | GAG | CAG | GTG | GAC | AAG | GAC | CTG | CGC | AAC | ATG | 1438 |
| Thr | Thr | Glu | Gln | Leu | Val | Glu | Gln | Val | Asp | Lys | Asp | Leu | Arg | Asn | Met |      |
| 465 |     |     | 470 |     |     | 475 |     |     |     |     |     |     |     |     |     |      |
| GTC | ATC | AAG | CCC | GAC | GCG | CCC | AAG | CCC | CGT | GTG | GTG | GGC | GTG | CGC | GTG | 1486 |
| Val | Ile | Lys | Pro | Asp | Ala | Pro | Lys | Pro | Arg | Val | Val | Gly | Val | Arg | Val |      |
| 480 |     |     | 485 |     |     | 490 |     |     | 495 |     |     |     |     |     |     |      |
| TGG | CCG | CGC | GCC | ATC | CCG | CAG | TTC | AAC | CTG | GGC | CAC | CTG | GAG | CAG | CTG | 1534 |
| Trp | Pro | Arg | Ala | Ile | Pro | Gln | Phe | Asn | Leu | Gly | His | Leu | Glu | Gln | Leu |      |
| 500 |     |     | 505 |     |     | 510 |     |     |     |     |     |     |     |     |     |      |
| GAC | AAG | GCG | CGC | AAG | GCG | CTG | GAC | GCG | GCG | GGG | CTG | CAG | GGC | GTG | CAC | 1582 |
| Asp | Lys | Ala | Arg | Lys | Ala | Leu | Asp | Ala | Ala | Gly | Leu | Gln | Gly | Val | His |      |

|   |     |     |     |      |
|---|-----|-----|-----|------|
|   | 515 | 520 | 525 |      |
| CTG GGG GGC AAC TAC GTC AGC GGT GTG GCC CTG GGC AAG GTG GTG GAG   |     |     |     | 1630 |
| Leu Gly Gly Asn Tyr Val Ser Gly Val Ala Leu Gly Lys Val Val Glu   |     |     |     |      |
|   | 530 | 535 | 540 |      |
| CAC GGC TAC GAG TCC GCA GCC AAC CTG GCC AAG AGC GTG TCC AAG GCC   |     |     |     | 1678 |
| His Gly Tyr Glu Ser Ala Ala Asn Leu Ala Lys Ser Val Ser Lys Ala   |     |     |     |      |
|   | 545 | 550 | 555 |      |
| GCA GTC AAG GCC TAA GCGGCTGCAG CAGTAGCAGC AGCAGCATCG GGCTGTAGCT   |     |     |     | 1733 |
| Ala Val Lys Ala   |     |     |     |      |
|   | 560 | 563 |     |      |
| GGTAAATGCC GCAGTGGCAC CGGCAGCAGC AATTGGCAAG CACTTGGGGC AAGCGGAGTG |     |     |     | 1793 |
| GAGGCGAGGG GGGGGCTACC ATTGGCGCTT GCTGGGATGT GTAGT                 |     |     |     | 1838 |

<210> 11  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Designed oligonucleotide primer used for amplifying a DNA fragment containing a *Chlamydomonas reinhardtii*-derived PPO gene

<400> 11  
 AATGATGTTG ACCCAGACTC CTGGGACC 28

<210> 12  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Designed oligonucleotide primer used for constructing a vector for expressing a *Chlamydomonas reinhardtii*-derived PPO gene in *Escherichia coli*

<400> 12  
 TACTACACAT CCCAGCAAGC GCCAATG 27

<210> 13  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Designed oligonucleotide primer used for constructing a vector for expressing a Chlamydomonas reinhardtii-derived PPO gene in *Escherichia coli*

<400> 13

TCGAGCTCAA TGATGTTGAC CCAGACTCCT GG 32

<210> 14

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Designed oligonucleotide primer used for constructing a vector for expressing a Chlamydomonas reinhardtii-derived PPO gene in *Escherichia coli*

<400> 14

TTGTCGACTA CTACACATCC CAGCAAGCGC CA 32

0928250 04099